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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,692	03/25/2004	Tsutomu Ogihara	035576/276101	6062
826	7590	09/08/2006	EXAMINER	
ALSTON & BIRD LLP BANK OF AMERICA PLAZA 101 SOUTH TRYON STREET, SUITE 4000 CHARLOTTE, NC 28280-4000			SARKAR, ASOK K	
			ART UNIT	PAPER NUMBER
			2891	

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/808,692

Applicant(s)

OGIHARA ET AL.

Examiner

Asok K. Sarkar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 6-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Appeal

1. As a result of the panel decision from a pre appeal brief review, the prosecution is reopened and the final office action mailed March 20, 2006 is hereby withdrawn.

Claim Rejections - 35 USC § 102

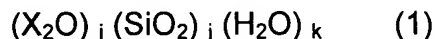
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 – 4 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Watanabe, US 6,632,489.

Regarding claims 1 and 15, Watanabe teaches a composition for forming a porous film comprising a condensation product and an organic solvent (column 6, lines 45 – 61) wherein the condensation product is obtained by condensation, in the presence of acid, of at least one compound selected from a silicate represented by formula (1)



wherein X independently represents Na, or quaternary ammonium (in between column 8, line 50 and column 9, line 7) , i, j and k independently represent numbers which satisfy $0 < i < 1$, $0 < j < 1$ and $0 < k < 2$ in between column 6, line 30 and column 9, line 7.

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The silica sol produced is in the form of liquid and can be used for coating purposes (column 4, lines 1 – 6). The condensation of the silicates in acidic solution is inherent in the process of Watanabe.

Regarding claims 2 – 4, Watanabe teaches mixing water soluble silicate such quaternary ammonium silicates to the silica sol prepared by mixing alkali silicate with acidic solution in between column 8, line 50 and column 9, line 7. The presence of the acid will hydrolyze the quaternary ammonium silicate to form the condensation product, which is ultimately converted into the silica sol containing silica particles.

The quaternary ammonium silicates contains alkyl group that has 1 – 20 carbons and is tetramethyl ammonium silicate.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, US 6,632,489 in view of Nishiyama, US 2004/0155053.

Watanabe teaches forming the film from a coating composition but fails to teach drying and heating the film.

Nishiyama teaches forming porous film by applying the composition on a substrate, drying and heating the film in paragraphs 25 and 32 – 35 for the benefit of deposition on a substrate in paragraph 19.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Watanabe and form the film from the coating composition by drying and heating the film for the benefit of deposition on a substrate as taught by Nishiyama in paragraph 19.

8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, US 6,632,489 in view of Mandal, US 6,576,568.

Regarding these claims, Watanabe fails to teach the modulus of elasticity and

the dielectric constant.

Mandal teaches that the porous films formed from the silica sol have modulus of elasticity between 5 – 50 GPa and the dielectric constant of 2.3 or less in between column 6, line 58 and column 7, line 10 for the benefit of providing a premetal or intermetal dielectric film in column 1, lines 12 – 16. The porous silica film formed by Mandal is similar to Watanabe because it is formed by adding tetramethyl ammonium salts to the acid solution containing the silica gel (see example 1 in column 10).

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention of Watanabe that porous films obtained by the sol – gel process can be customized to have modulus of elasticity between 5 – 50 GPa and the dielectric constant of 2.3 or less for the benefit of providing a premetal or intermetal dielectric film as taught by Mandal in column 1, lines 12 – 16.

Response to Arguments

Applicant's arguments filed July 20, 2006 have been fully considered but they are not persuasive. Most of the arguments raised by the Applicant are moot since the primary reference is Watanabe as was done only for claim 15.

The Applicant has argued that Watanabe does not disclose condensing the compound of formula $(X_2O)_i (SiO_2)_j (H_2O)_k$ in the presence of an acid as suggested by the Examiner. Also, Claim 15 is directed to a coating liquid that comprises the condensation product and an organic solvent as recited in Claim 1. Watanabe fails to describe a silica composition that is in the form of a coating liquid. Thus, Claim 15 is not

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anticipated by Watanabe because the cited reference fails to disclose or suggest each and every limitation recited in Claim 15 (see page 5 of Applicant's argument).

As described earlier, Watanabe teaches forming a silica sol that is used for a coating composition for an ink receiving layer (column 3, line 60 and column 4, line 6). Watanabe teaches Silica sol is a liquid that can be in an organic solvent (column 6, lines 45 – 61). Thus, the Applicant's assertion that Watanabe fails to describe a silica composition that is in the form of a coating liquid is not persuasive.

Applicant's second assertion that the coating liquid does not comprise the condensation product of a silicate material is also not persuasive. The silica sol produced by Watanabe can be produced only by the condensation of the silicates in the presence of acid. It is inherent in the process.

The silica produced by the condensation of silicates in the presence of acid by the process of Mandal is also similar to the product obtained by Watanabe. Mandal's process avoids the use of alkali metals.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asok K. Sarkar whose telephone number is 571 272 1970. The examiner can normally be reached on Monday - Friday (8 AM- 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William B. Baumeister can be reached on 571 272 1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Asok K. Sarkar
September 1, 2006

Primary Examiner